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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/302,576	04/30/1999	DAVID R. HEMBREE	96-876.1	7076

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EXAMINER

NGUYEN, TRUNG Q

ART UNIT	PAPER NUMBER
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2829

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DATE MAILED: 02/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

9W

Office Action Summary

Application No.

09/302,576

Applicant(s)

HEMBREE ET AL.

Examiner

Trung Q Nguyen

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-51 and 68-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-51 and 68-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 34-51 and 68-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 6,025,731. The conflicting claims are identical, they are not patentably distinct from each other because it would have been obvious, at the time the invention was made, to a person having skill in the art to have use the claimed invention as taught by Hembree (U.S. 6,025,731) et al. and use the reference signal circuit to produce a reference signal having a predetermined relation to the output frequency rather than substantially the same frequency because both of these signals come from different stages, therefore the two signals will not be synchronized, in which only the reference signal acts as the clock source to flip-flop and triggers on the trailing edge respectively.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Akram (U.S. 5,483,741).

Regarding claim 34, Akram (741) discloses a method for fabricating an interconnect for a semiconductor die (abstract), comprising: providing a substrate (12) (Figure 1, column 4, line 63); forming a contact member comprising a raised portion (65, Figure 7) of the substrate at least partially covered with a conductive layer and configured to electrically contact a contact location on the die (see column 6, lines 6-25, especially lines 9-11); attaching a metal conductor to the substrate proximate to the contact member; and forming a conductive material on the substrate in electrical communication with the conductive layer and the conductor (column 3, lines 8-31, especially lines 12-17, column 11, lines 24-25).

Regarding claims 35-37, Akram (741) discloses the metal conductor comprises a copper foil laminated to a polymer film (column 7, line 37, and lines 42-54); the conductive material comprises a conductive adhesive (column 1, line 31); the conductive material comprises a solder (column 8, lines 34-44, especially line 37).

Art Unit: 2829

5. Claims 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Wood (U.S. 5,495,179).

Regarding claims 38-40, Wood (179) discloses a method for fabricating an interconnect for a semiconductor die (abstract), comprising: providing a substrate (abstract); forming a plurality of contact members on the substrate configured to electrically contact a plurality of contact locations of the die (abstract); providing a tape (column 8, lines 6-8) comprising a polymer film (column 8, line 26) and a plurality of conductors on the film including a plurality of openings (92) configured for placement on the contact; attaching the tape to the substrate with the contact members projecting through the openings (column 8, lines 16-27); and depositing a conductive material in the openings in electrical communication with the contact members and conductors members (Figure 8, column 8, lines 5-19, especially lines 6 and 13), and the conductive material comprises a conductive adhesive (column 3, lines 63-64, column 8, line 26).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 41-51 and 68-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood (179) in view of Akram (779).

Regarding claims 41- 43, 48, 68, 71 and 74, Wood (179) discloses a method for fabricating an interconnect for a semiconductor die (abstract), comprising: providing a substrate (abstract); forming a plurality of contact members on the substrate configured to electrically contact a plurality of contact locations of the die (abstract); providing a tape (column 8, lines 6-8) comprising a polymer film (column 8, line 26) and a plurality of conductors on the film including a plurality of openings (92) configured for placement on the contact; attaching the tape to the substrate with the contact members projecting through the openings (column 8, lines 16-27); and depositing a conductive material in the openings in electrical communication with the contact members and conductors members (Figure 8, column 8, lines 5-19, especially lines 6 and 13), and the conductive material comprises a conductive adhesive (column 3, lines 63-64, column 8, line 26).

Wood (179) fails to disclose the forming the contact members comprises etching the substrate to form pillars. However, Akram (779) discloses forming the contact members comprises etching the substrate to form pillars and then depositing conductive layers on the pillars (column 3, line 5).

Therefore, at the time of the subject invention, it would have been obvious for a person of ordinary skill in the art to use the forming contact member as taught by Akram in the device of Wood (179) because of their low power dissipation, small scale, and readily availability.

Regarding claims 44-45, Wood (179) discloses the conductor includes an opening aligned with the contact member and the conductive material is deposited in

Art Unit: 2829

the opening (column 10, lines 10-14), and the conductive material comprises a conductive adhesive (column 9, lines 22-27).

Regarding claims 46-47, Akram (779) discloses a method for forming an interconnect for a semiconductor die (abstract), comprising: providing a substrate (abstract); forming a contact member on the substrate comprising a base (60)(column 5, line 59) and a pillar and a projection configured to penetrate a contact location of the die to a limited penetration depth (column 3 lines 9-14); the conductive material comprises a solder (column 8, lines 34-44, especially line 37); and attaching the tape comprises forming an adhesive layer between the tape and substrate (column 1, line 31).

Regarding claims 49-51, Wood (179) discloses the conductor includes an opening surrounding the depression (column 10, lines 10-14); the conductor comprises a metal foil laminated to a polymer film (column 8, lines 16-28, especially lines, 26); and attaching the conductor comprises forming an adhesive layer between the conductor and substrate (column 9, lines 22-27);

Regarding claims 69-70 and 72-73, Akram (779) discloses a method for fabricating an interconnect for a semiconductor die (abstract), comprising: providing a substrate (abstract); forming a plurality of contact members on the substrate comprising conductive layers configured to electrically contact a plurality of contact location on the die (Figure 15, column 4, lines 46-49); providing a polymer film with a plurality of


Art Unit: 2829

conductors thereon, the conductors including a plurality of openings configured for placement on the contact members (column 7, line 37, and lines 42-54).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Nguyen whose telephone number is 703-305-4925. The examiner can normally be reached on Monday through Friday, 8:30AM – 5:00PM. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5841. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached at 703- 308-1680.

TN
February 9, 2002


VINH P. NGUYEN
PRIMARY EXAMINER
GROUP 2829
02/11/2002